From the author

"THE LANCET"

REPORTS

ON THE

PRESENT SANITARY CONDITION

OF THE

MERCANTILE MARINE.

LONDON:

"THE LANCET" OFFICE, 423, STRAND.

1867.

Malter Deckson M. D. M. Csextoner



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INTRODUCTION.

THE health of armies and fleets has been for many years considered an object of the highest national importance. Commanders by land or sea who have deserved to be ealled great have always manifested the utmost solicitude on this point, and, however lavish of the blood of their followers on those days of struggle that deeide the fate of nations, were most eareful of their health and vigour, and so were enabled to take advantage of the moment, and to win their battles. It is said of Wellington that at the most critical juncture of his career his thoughts were ehicfly occupied with his soldiers' shoes; and the heroie Nelson is known to have made it his boast that in a small vessel he commanded in his youth he had not lost a man by siekness. In the wars of the last century, when the military art became more highly organised than in the half-fcudal times of the Tudors and Stuarts, great attention began to be paid to the health of troops and seamen by their medical officers. While Sir John Pringle and others were endeavouring to save armies in the field, Lind, Trotter, Blane, and other distinguished naval men made hygiene or preventive medicinc their special study, and with more striking results. On board ship, sanitary regulations can be applied with greater precision and exactitude than anywhere clse. Some most interesting experiments were made as to the influence of diet, climate, &c., both at home and abroad, and the naval medical officers of that time may be justly accounted the founders, in this country at least, of sanitary science. Their works are replete with instruction, and many useful hints may even now be gathered from them.

Fever, flux, and scurvy were the eruclest focs of fleets as well as armies. The two former, often climatic or of obscure origin, remain as formidable scourges, although in a mitigated degree. But the triumph over scurvy has been complete. We have to search in the voyages of Parry and Maclure, or other narratives of exceptionally long privation, to find any parallel to what was of everyday occurrence in the Royal Navy before preventive measures were made imperative. This fortunately coineided with the outbreak of the great French war, and, under Providence, bore no small part in helping to maintain the independence and greatness of our country. Since 1794 seurvy has been practically unknown in the English Navy, and this grand result is simply due to the daily issue of lime-juice. Although its virtues had been well known for two centuries before,* the success of its general adoption was such as to give it the éclat of a discovery.

Scurvy has since formed a minor chapter in practical medicine, but always deeply interesting as the most striking example we possess of science completely mas-

tering disease.

The few exceptional instances of scurvy recorded, as in the Arctic voyage by Dr. Armstrong, in convict ships by Dr. Bryson, in prisons by Drs. Baly, Christison, and others, serve only to furnish fresh proof of the singular efficacy of prophylactic treatment. But the most extensive outbreak of scorbutic disease in recent times formed an episode of the disastrous, though glorious, campaign of Sebastopol. Dr. Buzzard has recorded some striking observations†—many drawn from his own experience in the Turkish army—on the origin and spread of this unexpected disease. Its ravages were terrible, and it influenced for incalculable evil the progress of wounds

+ In an excellent article which has recently appeared in Reynolds' System of Medicine, vol. i., 1866.

^{*} Lime juice was strongly recommended as an infallible preventive and cure of scurvy by Woodall, an old naval surgeon, who was surgeon to St. Bartholomew's Hospital in the reign of Charles 1.

and all other maladies. No fewer than 2096 eases occurred in the English army, while the return from the French army was as high as 23,000. The Turks fared worse, but no statistics are given. Yet all this misery was incurred so late as 1854 through the want of succulent vegetables, or, in their absence, a farthing's worth daily of lime-juice. The miscalculations and mishaps of an unforeseen war may serve as an apology for such a lamentable but altogether exceptional incident.

Scurvy now finds its home in the British merehant navy, and in no other class of men in this or in any other country is it so prevalent as amongst English sailors. The annals of the Dreadnought hospital-ship have for many years supplied abundant evidence of this faet. Budd, in 1839, from his experience there, produced the admirable treatise which embodied in a more scientific form than before the whole history of the disease. Since then patients have annually multiplied in number, and in 1863 the increase attracted the attention of the Medical Officer of the Privy Council. At his request, Dr. Barnes drew up a comprehensive Report,* including not only his large personal experience in the Dreadnought, but a number of valuable facts derived from other institutions and other sea-ports. The extent of the evil throughout the shipping of the country, and chiefly of the northern ports, was thus exposed. Dr. Ward had before and since eontributed to our knowledge of the disease, of which he sees so many examples; and Mr. H. Leach has persistently pointed out such defects in the economy of individual ships as he has been able to glean from the narratives of the patients.† In 1864 the Scamen's Hospital Society began the practice of reporting to the Board of Trade all eases of seurvy of a supposed epidemie eharacter—that is, whenever two or more were received from one ship. Impressed with the importance of the subject.

^{*} Published in the Annual Report of the Medical Officer of the Privy Council for 1863. † Parliamentary Papers (1865), No. 404.

the Board of Trade has instituted in all such cases a minute inspection and inquiry into the circumstances of each vessel so reported. By their direction, Dr. Dickson. Medical Inspector of the Customs, aided by non-professional coadjutors, has made many such investigations in the last three years. The Reports thereon will be found to confirm to the fullest extent the suspicions that had been entertained of the neglect and mismanagement of antiscorbuties, and of their systematic adulteration, sometimes even in vessels of a high class, and otherwise in good condition. Some of the results of Dr. Dickson's observations were communicated to the profession at the Epidemiological and Hunterian Societies last year, and an abstract of one of these papers appeared in The Lancet of Dec. 29th, 1866. Another important condition in regard to the health of scamen-viz., accommodation, has long engaged the attention of the Board of Trade, in connexion with the admeasurement of tonnage and adjustment of ducs-matters of no small domestic and international moment. The result of their inquiries on the sanitary bearings of this point have not vet been published. But Dr. Stone, in an interesting and graphic communication to *The Times* of Jan. 14th, gave a gloomy picture of the berthing of the crew in several vessels he had visited in this port. An accumulation of evidence from all quarters demonstrates the defective condition of the merchant navy. The following observations are the fruit of unusual opportunities for ascertaining the true state of the case, and, it is believed, form a digest of all that is essential to be known. They have been communicated to the public through the fitting channel of a professional journal, without party bias on either political or social subjects. It is hoped they may awaken a legitimate interest in the question, and facilitate the discussion and adoption of such measures of relief as may be considered likely to be effectual, without needlessly infringing on the law and usage of the country.

Reports

ON THE

PRESENT SANITARY CONDITION

OF THE

MERCANTILE MARINE.

No. I.

SCURVY; DIET; LIME JUICE; ETC.

With the New Year a brighter day seems to be dawning for the merehant seaman, and awakens hopes that a foul national seandal is about to be swept away. We learn with satisfaction that the President of the Board of Trade is likely to invoke the aid of the Legislature on behalf of a valuable, but neglected and often ill-treated, class of the community. The warm-hearted tone of Sir Stafford Northcote's remarks the other day * augurs well for the spirit in which the subject will be introduced to Parliament. When the culpable apathy (to use no stronger term) with which mariners are treated by their employers is fairly placed before the country, and its indignation is roused, any well-considered measure for their relief can hardly fail to meet with general acceptance. The facts of the case lie in a small compass. There are some ships

^{*} At the opening of the Chichester, a well-devised institution, at once a refuge for the homeless boys of London and a training ship for the mercantile marine.

in which, through the wisc liberality of owners and the paternal care of captains, the crews are healthy and contented, and attached to their occupation. There are others wherein the misery and discomfort are past endurance, and render the vessel a floating pandemonium. latter class, however, is now comparatively rare. Merchant Shipping Act of 1854, which has been sometimes styled the Magna Charta of the seaman, has doubtless had the effect of restraining vexatious exacting tyranny on the one hand, and insolent turbulence on the other. Yet the normal condition of the great majority of vessels is still very unsatisfactory. The mutual relations of owner, captain, and crew are too often marked by a callous indifference. The owner obtains a motley and incompetent crew at the lowest possible terms in the He feeds and lodges them in the cheapest way market. The captain, however well-disposed, is in most cases entirely dependent on him, and has little influence in the matter. The men seldom seek to renew their engagement after one voyage. They frequently cut it short by desertion on the first favourable occasion, or are left behind abroad in some hospital or prison, their place for the homeward voyage being taken by those waifs and strays of humanity who figure on the shipping lists as "distressed subjects." The tie is, therefore, of a most temporary character, and is rarely strengthened by good feeling or by a sense of mutual obligation.

In the fierce competition of "sailing cheap," as it is termed, unscrupulous parsimony begets its Nemesis. Owners, we are told, are at this moment at their wits' end for trustworthy mariners to man their ships. The better class of our adventurous youth avoid sea service. They have discovered that the calling is one of great hardship and little gain, and that privation at sea, alternated with reckless dissipation on shore, tells most disastrously on life and health. There are not, nor probably

ean ever be, reliable data for exact computation; but it is notorious to those who are most competent to form an opinion that disease and death are far more rife than in other kinds of labour. Yet we know from the experience of the Royal Navy and of the better class of merchant ships that, with ordinary care and attention to a few simple matters of detail, there is nothing peculiar or incidental to a sailor's life of a specially unhealthy character.

The increasing prevalence of scurvy is an unerring gauge of gross mismanagement or of cruel thrift. Ships are finer; passages are quicker; provisions and water are better. In all the matériel of a seafaring life enormous progress has been made. But the sanitary condition of the erew has in many vessels reverted to what it used to be a hundred years ago. The lessons learned at so much cost, which were inculcated by Lind, Blane, and others, and thankfully earried out by illustrious sailors like Cook and Nelson, are forgotten. Old-established truths have to be revived and insisted on for a new generation, on whom, through perverseness or ignorance, the experience of the past has been thrown away. It has been wisely said that if scurvy can be kept out of the cabin it can be kept out of the forceastle. In the smaller vessels, we are told, the difference in diet is not great. Yet it is enough to preserve the officers in health and vigour. A few tins of preserved meats and vegetables, pickles and seasonings, with an occasional glass of bitter alc, seeure for them immunity from the scourge that prostrates and slowly kills their unhappy shipmates. We should rejoice to find that, in addition to the time-honoured salt pork and beef, biscuit, flour, and peas, that now form by mutual agreement the staple of all ships' diet, our merchant seamen had a legal allowance of preserved potatoes, onions and carrots, pickles, mustard, and molasses, with currants and some of those eheap dried fruits so commonly used in America. We know from practical

experience that most savoury and varied messes can be concocted from such ingredients. Jack would be well satisfied with the occasional change from junk and its heavier accompaniments. The cost of these articles is inconsiderable, and his improvement in health and temper would be cheaply purchased.

Spirits, we believe, are no longer issued daily as part of the dietary of the mereantile marine, but are given in most vessels at times at the discretion of the eaptain. This system is said to work well, and any alteration would be inexpedient. If an oceasional issue of beer or wine eould be afforded, their antiseorbutie virtue renders them desirable beverages for seamen. In the ships of southern nations wine is the ordinary drink, and freshmade bread the staple article of food; and seorbutie disease is of rare occurrence. It is well known that in the last century the great fleets of France were free from seurvy, while ours were suffering dreadfully from the disease, and on some occasions this inferiority told greatly against us. Sir Gilbert Blane was so impressed with this fact that he strove hard to introduce wine in lieu of spirits. Soon after, however, the use of lime-juice beeame general in the Royal Navy, and, from its wonderful prophylaetie power-even when provisions and water were bad and other sanitary conditions were low,—it was at once declared, and has ever since been most justly accounted, the facile princeps of all antiscorbuties. But, to be efficient, it must be of good quality, and taken daily in regular and sufficient quantity. It is chiefly in these points that the ménage of our merchant vessels is so defeetive. Through a vile system of adulteration, and a faulty method of preserving it even when genuine, all faith in lime-juiee has been weakened. Its issue is eonsidered by many as a vain form, and its eonsumption as a nauseous and repulsive task. Such is the erroneous estimate of what ought to be, and is, a most agreeable

and refreshing beverage, which for nearly a century has given solace and health to thousands of our gallant tars on every sea and in every variety of elimate. In any legislative enaetment special care should be taken to secure by examination the absolute purity and appropriate packing of the lime-juice before being placed on board, and to insist on its punetual administration whenever fresh vegetables are not procurable. The present terms of the Aet are not sufficiently precise, or, at all events, can be evaded. There may be difficulty in arranging the details of such examinations. For, as in the memorable ease of the London, inspection with a view to prevent mischief sometimes serves only to shift the onus of responsibility on the Government, and enables those who are in reality most responsible to escape. No enactment can be complete which does not bring the vendor's stores under direct supervision, and which fails to infliet deterrent penalties, not only for adulteration, but also for proved negligenee on the part of owners and masters of ships. The eost of genuine lime-juiee, properly packed and warranted to last two years, is little, if at all, greater than a solution of eitrie aeid of the same strength. It is true the factitious mixtures in vogue are much weaker, and, although ehiefly composed of citric acid, are sometimes sharpened with vinegar or sulphurie acid. For the supply of an ordinary ship, a very few pounds will represent the difference in cost of the best and the worst limejuice in the market. And it is for this paltry saving that "highly respectable" men-local magnates-leaders, it may be, of public movements—do not seruple to rob their servants of health and strength, and to bring seorn and reproach on their country. It is to be regretted that in such flagrant eases as have recently occurred the sufferers did not seek redress by an action for damages. When the culprits are so numerous as to keep one auother in countenance and defy exposure, it is only by mulcting the pocket that a desirable impression can be made.

We shall await with interest the discussion of this subject in the ensuing session, and can assure the Government that any comprehensive measure for the physical improvement of the "mariners of England" will be most heartily welcomed by our profession.

No II.

FOOD; PRESERVED MEATS; MEDICAL COMFORTS; WATER.

As next to the question of lime-juice that of food is most important as affecting the health of the merehant seamen, we present to our readers the usual scale of provisions, agreed on by mutual consent, in British ships on oceanie voyages.

	Biscuit.	Beef.	Pork.	Flour.	Peas.	Tea.	Coffee.	Sugar.	Water.
Sunday	lb.	lb.	lb.	$\frac{1}{2}$	pint.	OZ.	0Z.	oz.	qrts.
Monday	1		11/4		1/3	18	$\frac{1}{2}$	2	3
Tuesday	1	1½	• • •	1/2		18	$\frac{1}{2}$	2	3
Wednesday	1		14		1/3	18	1/2	2	3
Thursday	1	11/2		$\frac{1}{2}$		18	102	2	3
Friday	1		11/4		1/3	18	12	2	3
Saturday	1	11/2	•••	1/2	•••	18	1/2	2	3

Lime-juice, sugar, and vinegar, as the Act directs. When fresh meat is issued, 2 lbs. to be given in lieu of salt meat, flour, and peas. Half a pound of rice is given in some ships weekly.

These quantities are sufficiently liberal. The meat is liable to shrinkage, and the condition of the beef and flour is frequently the subject of complaint. The articles, when of good quality, as in most cases they are admitted to be, are probably well suited to the taste of English sailors as the substantial portion of their aliment. For they, in common with many of the labouring class at

home, often prefer salt and dry food. Even when on shore, seamen cat from ehoice such viands as salt fish, bacon, eheese, and the like, and with greater relish than they do fresh provisious.* But, as the time between their voyages is very short (frequently not exceeding a few days), they rarely have the opportunity of enjoying a mixed natural diet sufficiently long to counteract the ill effects of their usual regimen. For there is no doubt that the protraeted use of salt provisions, however good, is injurious, from their inferior nutrient power and from their monotony. Even when no decided indication of seorbutie disease has appeared, dyspepsia and the long train of maladies of which it is the harbinger, diarrhea, and dysentery are very eommon affections, which can be distinctly traced to this cause. To counteract this tendeney to gastrie and intestinal irritation, we would recommend that preserved potato or other vegetables should be issued at least three times a week, and that dried fruits and well-approved seasonings, as pickles, mustard, and molasses, form part of the regular dietary of all ships.

With regard to the minor articles of diet there is little to be said. Tea, eoffee, or eoeoa are almost invariably given daily, but are said to be often of indifferent quality, and badly prepared. Besides lime-juiee, vinegar is the only article of eonsumption positively enjoined by law. Half a pint is directed to be issued to each man every week. Although an agreeable condiment, it seems to be of comparatively little value as an antiscorbutic. Many instances have occurred to our knowledge of its having been regularly taken, and in large quantity, by persons who have suffered from the severest form of seurvy.

^{*} During the potato famine, as is well known, many "navvies" and others suffered from seurvy by reason of their fondness for such articles of diet, and their neglect of succulent vegetables and milk; and this was often more from deliberate choice than from any pecuniary inability to procure them.

Notwithstanding that it employs the prestige of authority, vinegar is probably inferior as a prophylaetic to the seasonings specified above. It should never be regarded as in any degree an equivalent for lime-juice; yet so to consider it is a common error on the part of captains, who suppose that for such substitution they have the authority of the law.

The cost of production of preserved meats, soup, and fish, has been so much reduced of late years that an occasional indulgence of this kind might, we think, be afforded. In many ships soup and bouilli are given once a week, and are duly appreciated. It is better, however, that on such days as preserved meats are given, half the usual ration of salt meat should also be issued. are much more palatable in combination than separately. Some seamen still retain an invincible prejudice against preserved meats, from the bad character which the cheaper sorts have borne. It may be remembered that some vears ago they were supplied to the Royal Navy as a regular ration two or three times a week. But through bad faith on the part of the contractors the scheme proved a failure. Much of the meat was no better than earrion or the vilest offal, and large consignments of it had to be condemned. The public disgust and indignation were strongly expressed. It was rumoured, we know not with what truth, that "Goldner's meats" were supplied to the ill-fated vessels which composed Franklin's expedition. Some portion, however, of these justly abused provisions was of fair quality. We remember them well as used in 1850-53 on the West Coast of Africa, when they were considered by no means an undesirable addition to the often restricted dietary of that wretched station. There seems to be no reason to doubt that the excellent meats now procurable would be thankfully accepted by seamen as an agreeable and salutary variety from their ordinary fare.

For the siek, at all events, preserved meats are an article of the first necessity. No culinary art can make the ordinary food of the ship suitable to men suffering from the diseases ehiefly incident to seamen in tropical elimates: as ehronie dysentery and diarrhoa. In the Royal Navy the preserves, including mutton, soup, essence of beef, milk, jelly, &e., are of admirable quality, and are dispensed most liberally at the discretion of the medical officer. Except in those merchant vessels that earry a surgeon, no preeaution seems to be taken to provide such eomforts expressly for the use of the sick. Even eheap necessaries, as sago, rice, and corn-flour, do not always form a part of the scheme of diet; and unless the invalid is supplied from the eabin with the little luxuries his eondition requires, his chance of recovery is greatly diminished. Such aid is, we doubt not, never withheld when it is possible to grant it. But where there are no passengers the eabin stores are often seanty and soon exhausted; and we fear that many a death at sea is in a great measure attributable to the lack of appropriate nourishment. In any contemplated amendment of the Shipping Aet, eare should be taken to eause the owner to provide a few essential medical comforts, to be serupulously reserved for their legitimate purpose.

Extraordinary remissness is sometimes shown in the non-supply of fresh meat and vegetables while the vessel is in port. Meat is sometimes given while vegetables are withheld—a stupid omission, as the latter are hygienically of greater importance to scamen. Seurvy, as is well known, may occur with an exclusively freshmeat diet, however plentiful, if vegetable food of a succulent character be absent. Witness the outbreak of the disease among the troops in Sonth Africa some years ago, and the frequent instances of its appearance in prisons. Green vegetables and acidulous fruits are the natural complement of salt provisions, and care should

always be taken before leaving harbour to lay in a stock of such things as may be kept for several days of the voyage—as limes, bananas, eocoa-nuts, yams, and potatoes. This obvious precaution is, we fear, as a rule, neglected. Can we wonder that, in the absence of good lime-juice or any reliable substitute, sea seurvy should so often make its appearance on a four or five months' passage home? Not long ago we met an instance of a ship lying at anchor in a tropical port, within easy access of the shore, for more than a month without making any change in the kind and quantity of food. On the seore of health, the erew would have fared as well, probably better, in mid-ocean. In most eases money, we understand, is paid to the men for the purchase of fruit, &e., from the bumboats; but expended in that small way it does not go far, and is as often spent in vice or in the purchase of euriosities. In a matter of so much moment to the subsequent health of the erew, and it may be the safety of the ship, it is surely the bounden duty of their officers to see that, when opportunity offers, all possible dietetie means be resorted to for recruiting their health and vigour.

Water in some respects plays an equally important part as food in determining the sanitary condition of merchant vessels. Were the experience so painfully purchased in this metropolis during three cholera epidemies wisely applied in behalf of this class of the community, who are often placed in situations and circumstances most favourable for the reception of the choleraic poison, an incalculable amount of valuable human life would be saved to the country. The great tidal rivers of India and China are polluted by the sewage of the enormous population that lines their banks, and are charged with every kind of impurity to a degree of which in these temperate climates we can have but a faint conception. Yet in many, if not in most, vessels this water alone is used for drinking

or eulinary purposes. Sometimes it is drawn from alongside for immediate consumption. Sometimes it is proeured from the tank vessels after undergoing a rough and imperfeet filtration affoat or on shore. The poison is concentrated as well as diffused, by the excessive heat, which at the same time enervates and depresses the European sailor, and, combined with debility from debauchery and want of proper food, renders him well fitted to receive it in its most intense and virulent form. The mortality among our seamen in these Eastern ports from cholera, diarrhœa, typhoid fever, and dysentery is at times appalling. We have seen numerous instances of half or more of a ship's erew being stricken down-perhaps in a single night,—with the same proportion of deaths, more or less rapid, which unhappily seems to obtain in all elimates and under every variety of treatment.

The deleterious influence of impure water in the eausation of the first three, if not all, of those diseases is a truth which is now so well established that it is unnecessary to dwell on it. When it was less generally recognised a striking exemplification of it came within our immediate knowledge. A ship with 500 men lay in the river Hooghly for six weeks in the hottest season of 1858, and remained unscathed, while cholera fell heavily on all the vessels around us. The sanitary condition of that ship was excellent. But there was free communication with the shore, and oecasionally with other vessels. remarkable immunity from bowel disease, which we then and afterwards in similar eircumstances enjoyed, appeared to be chiefly due to the fact that only distilled water was used on board. The supply was unlimited, so that the men had no excuse for making use of any other. There were a few eases of diarrhoa of no great severity, except one in a man suffering from rheumatic gout, who had been taking eolehieum, and who soon suecumbed,

manifesting eholeraie symptoms during the last hour or two of life. The superiority of condensed over natural water-if that term can be applied to the water which is derived from tropical and town-girt rivers-seems to us so marked that we would advise that, whenever practicable, the former should alone be used for drinking or eulinary purposes so long as the ship remains in such localities. We observe that, in some otherwise excellent hints for the prevention of seurvy drawn up by the Seamen's Hospital Society in 1865, and published by the Board of Trade for gratuitous distribution, exception is taken to the use of condensed water, on the ground, we presume, that, from the absence of the salts of potash and other saline ingredients, it was more likely to eonduce to the manifestation of seorbutie disease. Even if this position were tenable, which we are disposed to doubt, the slight advantage gained is so immeasurably eounterbalanced by the risk of the most acute and fatal of all diseases, that we think, in those countries where eholeraie disease is endemie, this eaveat may as well be omitted.

When distillation eannot be resorted to, every means should be taken to purify river or well water by filtration, boiling, and the use of permanganate of potash, of which there should be a supply in all ships.

Water should be kept, and indeed generally is, in iron tanks, and earefully eovered over to prevent the entrance of dust, soakage, and other impurities that abound in the lower part of the ship. The quantity allowed in the scale, if that include all the fresh water used by the erew, is much too small. Greater part of it must necessarily be eonsumed for the tea, eoffce, soup, and lemonade, supposing the last to be regularly issued; and thus little is left for drinking in climates where, it must be remembered, there is excessive perspiration and perpetual thirst. We do not know whether the allowance for washing is

also included. Without sufficiency of fresh water there can be neither cleanliness nor comfort. A gallon a day should be the least quantity devoted to each individual, besides a due proportion for ablution of the person and clothes, when the supply from rainfall is inadequate for that purpose. And in vessels with small crews there ought to be no difficulty in the matter. In those ships of war where, by the good sense of the captain, an unlimited quantity of water is allowed, the content and comfort attained far more than compensate for the extra cost of fuel or trouble in watering.

No. III.

ACCOMMODATION; FORECASTLES AND DECK-HOUSES; SCURVY IN THE SPANISH FLEET; CLOTHING AND PERSONAL HYGIENE; VENEREAL AND OTHER SELF-INFLICTED DISEASES.

In providing for the berthing of the crew there is found to be a much greater diversity, according to the size, class, and trade of the ship, than in the dietary questions which we have discussed.* A good deal has been done in late years to increase and ameliorate the accommodation for seamen in many ships. But in the great majority there is ample scope and necessity for improvement, seeing that in this as in other respects there is a strong tendency to lag behind the spirit of the age. The old forecastles and top-gallant forecastles, as they are termed from their position either below or above the upper deck, were simply disgraceful. But in many vessels, even of large tonnage, and giving good accommodation for passengers and cargo, those miscrable dens are still permitted to exist. Imagine a small triangular space in the bows of the ship, the maximum dimensions of which required by law are seventy-four cubic feet for each individual, flooded by the waves, and practically uninhabitable if above deck; filthy, dark, damp, and unventilated if below: no pains being taken to provide such simple contrivances as mangers, hawse-pipes, ventilating-funnels, rain-awnings and furniture, which might exclude water, admit fresh air and light, and somewhat mitigate their comfortless condition. Compared with such abodes the

^{*} In corroboration of this we may refer to a very elaborate and valuable contribution on this branch of the subject from Dr. Stone, which has just appeared in *The Times* of the 14th inst.

worst workhouse ward or Irish cabin is almost palatial. It is true that one-half of the hands are generally on deck at sea, and that in fine weather the crew may sleep and eat in the open air; but in harbour, in rain, or in cold and rough weather, the forecastle is the home of all. At no time is there any other refuge for the sick; and the fate of a poor fellow-creature, lingering in agony, suffoeated and starved, drenched and tempest-tossed in such a place, is as gloomy and painful an incident as can be conceived to occur in civilized life. Yet death in such circumstances is by no means uncommon, and may well justify the expression, in the last rites which human sympathy can render, of thankfulness for the deliverance of "this our brother" out of the miscrics of a sinful world. It is well known that, with some pains and at no great expense, these loathsome places might be so much improved as to be made habitable and wholesome. nautical philanthropists and leading shipowners have taken up the matter, have acknowledged the shameful deficiency now existing, and promised amendment. is well, for in this country much more is done, and better done, by voluntary effort than by legal enactment. There are one or two points, however, which should be insisted on as absolutely indispensable to the well-being of the The allowance of cubic space should not be less than ninety feet for each adult, or, as it is more often expressed in nautical parlance, fifteen feet of surface the same amount of room which is now secured by law for emigrants. Care should also be taken that no vessel should go to sea unprovided with the fittings mentioned above. We believe that the present tonnage laws operate injuriously on the accommodation of many ships, for the space devoted to the crew is only permitted to be deducted from the gross tonnage of the vessel when their berths are situated on the upper deck. This appears to be faulty legislation, somewhat analogous to that by which windows

and building materials were formerly heavily taxed, and the eost of convenient and salubrious dwellings was greatly enhanced. The result on shore has been a large preponderance of ill-eonstructed, badly-ventilated houses, which have fallen into the hands of the poor, are overerowded, and, as nests of every form of zymotic and contagious disease, have become the seourge and terror of their neighbourhoods. Something akin to this is found on board those ships whose sanitary condition is so deplorable, and where the crew have to spend part of the day at least in a close and pestilential atmosphere. Typhus is probably sometimes, and rheumatism often, engendered in such forceastles; and all the epidemic, endemie, and eonstitutional discases to which the sailor is subject are, without doubt, greatly aggravated, and attain a fatal intensity.

There are doubtless many ships in which the berthaeeommodation is very satisfactory. We are glad to find a large and increasing number of vessels with deek-houses built amidships, which give ample space, are well lighted and ventilated, and should therefore be eleaner, drier, and more salubrious than even the better elass of foreeastle, and infinitely superior to the filthy dungeons which it was often our lot to examine some years ago. Yet, as if to further sharpen our endeavours for the merehant seaman's welfare, we have ample demonstration that roomy berths are not everything. Dr. Diekson has remarked (The Lancet, Dec. 29th, 1866) that in the numerous seurvy-stricken ships of which he has recently had special eognisance the quarters allotted to the erew were unexceptionable. They were all vessels employed in the India or China trade, fitted with the deekhouses described above, and were in good sanitary condition except in one point—namely, the dictary arrangements, which were in every case more or less defective. These ships, however, enjoy eomparative immunity from other diseases not

directly connected with the privation of proper food. And it is equally obvious that scorbutic or any other disease is certain to be more destructive in those vessels in which good lodging and every other hygienic consideration are systematically neglected.

A very remarkable outbreak of seurvy on the grand scale has recently occurred, the details of which will, we trust, be one day made known. The Spanish squadron which, in the late hostile operations, has been engaged in blockading the ports of Chili and Peru, is reported to have suffered frightfully from scurvy. One frigate, the Resolution, had arrived at the Falkland Islands, on her way from the Pacific, and we are informed, on reliable authority, that she had as many as 100 cases of the disease on board, and no fewer than thirteen deaths. strict blockading service, as our own experience in various parts of the world has taught us, is attended with considerable privation; but for many years, even during very trying and exacting service of this nature, scurvy has been unknown in the English Navy. This Spanish force, it is true, were far from their base of operations, and had no neighbouring friendly or neutral port. Their sufferings from want, like Drake's and Anson's on the same coast, were probably great. It will be curious and instructive to ascertain the history of this visitation, and to compare the particulars of naval hygiene as practised in English and Spanish ships, and we hope that fuller information than of other "Cosas d'Espana" will be obtained concerning an episode which, medically considered, is novel and interesting.

It has been always observed that in time of war the amount of sickness and mortality in the Royal Navy becomes much augmented. The normal condition of the merchant service may not inappropriately be likened to war, for the great commercial battle for gain cannot be won without excessive and continuous labour. Quick

voyages and a curtailed stay in port leave no time for real relaxation or repose. Much of this is inevitable and irremediable, but by care, tact, and kindness the hardships incident to the mode of life may be considerably alleviated. By the use of sun-and-rainawnings, and avoiding unnecessary boating and other laborious work in the hottest hours of the day, much coup-de-soleil, fever, and visceral congestions, the result of insolation or of sudden partial chills, and from which scamen suffer greatly in tropical ports and even at sea, may be averted.

It is beyond our province to enter into the wider question of elevating the moral and social condition of merehant seamen. There are many workers in this interesting field. Sailors' homes and institutes, training sehools, cheap postage, Government savings-banks, and insurance schemes, are all operating, slowly but surely, for good; and we wish them and their promoters increasing success. But as an indispensable preliminary to the seaman making any satisfactory use of these benefits, we must seek to improve his physical condition.

It is in vain that the merehant seaman shall be better fed and lodged and cared for, if he make no effort to throw off the heavy voke of his own vices. Even now a very large share of his miscries is self-induced. gross and reekless debauehery in which he dissipates in a few days the entire products of several months' labour is often more injurious to his health than toil and privation, leaving him penniless and nearly naked—a ready prey to the erimps and low traders who infest seaport towns. We have seen numerous instances of men joining a ship in a foreign port in the thinnest of elothing, which is soon worn to rags, and is quite unsuitable for the eold weather he encounters on reaching colder latitudes. Much illness, rheumatism, thoracie inflammations, and the like, are often directly due to this eause; and it not unfrequently has appeared to us to aggravate and accelerate

the manifestations of scorbutic disease when other sanitary conditions—food always excepted—were favourable. So also, we think, does the want of cleanliness, for which the lowest type of scamen—now unhappily so preponderant—is proverbial. Filthy in their persons and clothes, they frequently contract itch and other obstinate skin diseases, erysipelas, boils, and ulcers. In very cold weather, when there is a not unnatural repugnance to ordinary free ablution, we have seen in some ships of war warm water issued to the men with apparent advantage.*

Excessive and protracted intemperance gives rise to a long train of familiar maladies modified by climate and other circumstances. Dr. Ward has recently given a graphic account of some of the typical cases of this kind which are to be found in perfection in the *Dreadnought*.

But the chief and most enduring scourge of seamen in all parts of the world is venereal disease. With rare exceptions these men are young and unmarried, are estranged from all female society for the greater part of their life, and have no home ties. Consequently, when they have the opportunity, they are more prone to fall into sexual excesses than other men. The women with whom they associate, in the sea-ports of this country at least, are the most degraded of their class; and are believed to be, with few exceptions, the subjects of ulceration of the genitals or gonorrhea.. It is certain that of the crews that leave England daily, a large proportion of them, indeed a majority, are suffering from some form of these diseases or their sequelæ, and do not recover till the voyage is far advanced. Where there is no surgeon in the ship, some apply for treatment to the captain,

^{*} On more than one oceasion we have found whitlow to prevail so extensively amongst seamen as almost to amount to an epidemie. This was in a temperature considerably below our winter average—viz., in Northern China and the Baltie; and we were inclined to attribute it as much to neglect of ablution as to cold. In a South-Polar expedition in which we bore a part, this local affection was not observed to occur in such degree.

others conceal their state and treat themselves with the nostrums they have procured from the pernicious quaeks who flourish on the water-side. Mereury is often blindly given, and much misehief ensues. Strieture, ehronie orchitis, and the manifold forms of secondary syphilis, are rife in the nautical community, and embitter and shorten their lives to an extent probably unknown in any other elass of men. The sufferers are often for many months without any adequate medical aid; and the evil is otherwise so fraught with misehief of a serious and lasting eharaeter that it would seem expedient that the same protection which has lately been bestowed on the Army and Navy should be extended to the Mercantile Marine. Some time must elapse before the results of the Contagions Diseases Aet of last session ean be advanced as so fully and indisputably satisfactory as to warrant such extension. But to all who are conversant with both services, a measure of prevention applicable to the merchant seamen seems to be even more urgently demanded than for the servants of the State. No seruples need be entertained with regard to the requisite eoereion of the women engaged in this traffie. A walk at noon-day through Wapping or Shadwell would satisfy the most ardent advocate of the "liberty of the subject" that the shameless, besotted ereatures, who offend every sense, and whose parallel eannot be found in any other country of the eivilized or uneivilized world, could only be benefited by regulations which should impose on them any modieum of salutary discipline and decent restraint. It would, indeed, be the first and most effectual step towards reclaiming them to a better life; while an inealeulable boon would be eonferred on the class of men who, by force of circumstances, suffer so grievously from the foul diseases which these women are now permitted to disseminate unchecked.

No. IV.

RELATION OF SYPHILIS AND OTHER DISEASES TO SCURVY; FUTILITY OF DRUGS; THE "DREAD-NOUGHT;" CHANGES REQUIRED IN THE SHIPPING ACT, AND HINTS FOR FURTHER IMPROVEMENTS; COMPARISON OF THE ROYAL AND MERCANTILE MARINE; CONCLUSION.

Although syphilis and the allied diseases have much to answer for, as inflicting grievous injury on seamon, and lowering in an enormous ratio the health-eondition of the merchant navy, yet in some instances they have been blamed for illness which in truth has arisen from other causes. It is not uncommon for masters of ships to attribute to a venereal origin many of the cases of seurvy that occur in homeward voyages. This is often alleged in good faith, as there is generally some foundation for the surmise. The vietim of seurvy has, in too many cases, been also the vietim of sexual disease. Seorbutie symptoms are obscure at the outset. Muscular pains and debility, without fever or any marked change in aspect or loss of flesh, excitc suspicion in the minds of equals as well as superiors. But in no long time the supposed "skulker" exhibits the pathognomonic signs of fluidity and vitiation of the blood, due to the privation of vegetable aliment, which vanish when, by good fortune, the missing constituents can be supplied. Very different is the slow and exanthem-like course of the enthetic poison. Yet it seems probable that these morbid conditions may eoexist; and it is certain that a considerable portion of those affected with scurvy have recently suffered from venereal. But the same increased liability is found in those who are convalescent from the climatic fevers and

fluxes of the tropics, and only proves that the seorbutic poison, whatever it may be, resembles most other poisons in making itself more quickly and potently felt when the recipient is debilitated by previous disease.

Woe to the sufferer who, by an unhappy error, is subjected to mercurial treatment. We need hardly recall the well-known incident in the life of Boerhaavc, who, as the most eminent physician of his day, was consulted on behalf of the imperial armies in Hungary, when suffering, as all armies then suffered, from land-seurvy. On theoretical grounds he prescribed the use of mercury to salivation, and out of four hundred men, the subjects of his experiment, not one is said to have survived.

Experienced and discriminating captains may treat the eases as seurvy from the beginning. But the means at their disposal are very limited. The muddy remains of the lime-juice or its imitation are inert. Citrie acid or nitrate of potash with vinegar are the other remedies employed. But neither of these recognised substitutes, although reported to have been given in large doses, has proved, in the numerous eases that have eome to our knowledge, to be of any appreciable value as curative agents. The present Director-General of the Navy, Dr. Bryson, had the rare opportunity in a convict ship of testing, on a great seale, the merits of lime-juice, eitrie acid, and nitrate of potash; and eame to the eonelusion, like all others who had fairly tried them, that eitrie acid, even in large doses, was inferior, and that nitrate of potash was comparatively worthless. Neither the acid nor the potash salts, though plausible enough on ehemical grounds, will bear the test of experience. This has been known for many years; but the ignorance even of those most interested is so persistent on such points, that trite facts and old truths are prominently set forth and arc accepted by the public as novelties. The captain exhausts his medicine-ehest in vain. When the vessel enters the higher latitudes, not only those predisposed by debility, but the most robust of the erew, have become affected. It is only because voyages are performed so quiekly that we have not ships entirely disabled. As it is, much risk is run to ship and freight; for no disease incapacitates men more completely for work, and, when they arrive at the wished-for haven, they are a burden to themselves and everyone about them. Fortunately there is in this great port of London an asylum ready to receive them, and to bestow that eare without which they must inevitably have perished. It has been truly said that the decks of the *Dreadnought* are regarded as a very paradise by those reseued wayfarers, so great is the contrast to the miscry they have left behind.

"It is a faet," writes Dr. Barnes, "that stands out prominently, from obscrvations made on board the *Dreadnought*, that Liverpool, North Country, Hamburg, and American owners exhibit the greatest amount of disregard of the safety and health of their erews.* The plight in which the poor sailors from certain services are admitted is pitiable to witness. Disabled by hardship, semi-starvation, and ill-usage of every kind, they are east out with the same indifference with which a worn-out block would be thrown overboard."

The treatment of scurvy in the *Dreadnought* is simple and mainly dictetic; but it acts as a charm, and in most eases restores the sufferer in a few days from a state of extreme prostration to such enjoyment of life as he has long been a stranger to. But the physical deterioration from this blood-disease is sometimes great and enduring. "The constitution that has onee yielded to scurvy is so far damaged that any latent predisposition to other disease, as to phthisis, is apt to acquire ascendancy, and to hurry

^{*} Within the last two years the proportion of scurvy from foreign ships has been greatly diminished, being only 1 per cent. in 1865, and 5 per cent. in 1866.

the vietim to an untimely end." We have here only to deal with questions of etiology; but by far the most important contributions that have been made of late years to the pathology and therapeuties of the diseases of seamen have emanated from the medical staff of the Dreadnought. In reference to our present subject, besides the report of Dr. Barnes* from which we have quoted, and which has formed the basis of all subsequent discussion on the subject, Dr. Ward has given the profession some admirable and truthful portraits of seorbutic and other disease. (Vide The Lancet, Nov. 1860, et seq.) We know of no more interesting hospital to visit, of none more lavish of its benefits and eatholie in its utility, or which is more thankfully appreciated. In any legislation in behalf of the sailor, we trust that the Dreadnought will not be forgotten; for no existing institution has been more praetically useful. The sums which are said to have aecrued to Government from lapsed sehemes, dead men's effects, and fines, could not be more gracefully or appropriately expended than in affiliating the Dreadnought to its great neighbour at Greenwieh, or otherwise enabling it to extend its sphere of usefulness.

The other amendments in the Merehant Seaman's Aet which are required in order to place his physical condition more nearly on a par with that of his brethren in the Royal Navy have the great merit of being inexpensive to the country. They have been concisely stated by Dr. Dickson (The Lancet, Dec. 29th, 1866). An improved dictary, including provisions for the sick and a daily issue of good lime-juice to all, is the chief desideratum. To secure for sailors the last essential article a system of inspection, or licensing, or special warranty† is necessary

^{*} At the request of the Medical Officer of the Privy Council, and incorporated in his Annual Report for 1863.

[†] A proposition of Captain Hunter, of the London Local Marine Board, to issue lime-juice mixed with spirits out of bond seems feasible. Licences to

as a cheek on unscrupulous vendors, and equally unscrupulous buyers. Besides this, better housing should be provided by law in such vessels as are defective, by increasing the present cubic space by one-fourth, and insisting on the fittings necessary to insure a decent amount of comfort, or at least of tolerable accommodation. This eannot be called a question of wages, for the cost of the proposed changes to the shipowner would be infinitesimal; but it involves a better tone and a more lively and sympathizing interest in their seamen than is often met with. When it is stated that by an annual expenditure not exeeeding a pound per man the preventable diseases which now eripple and seandalize the merchant navy might be exterminated, it is difficult to attribute the present notorious evils to aught but want of knowledge and indifference. There is some excuse for the masters of these The system is more often to be blamed than the individual. The majority are intelligent and kind-hearted men, but they are for the most part entirely dependent on the owner, and are often placed in circumstances of exceptional difficulty. Among the degraded race of seamen now extant they have coarse and perverse natures to deal with, on whom eare and kindness would sometimes seem to be thrown away, and who would desert or shirk work at the first opportunity. When medical responsibility devolves on them in addition, their position in many eases becomes onerous and painful. The regulation by which all details of sickness must be entered in the official log-book is a restraint on eulpable neglect. But in most cases within our knowledge officers discharge those unwelcome duties with good sense and kindness, and it is very seldom that any complaint on that score has reached us. A knowledge of simple and obvious

vendors and inspection of their stock were proposed to the Board of Trade by the Local Marine Board of Sunderland in December, 1864. Sunderland has recently had an unenviable reputation for the prevalence of scurvy in its ships. hygienic means is so useful to all sea officers that we think a simple examination thereon should be required as a test of their training. It would be a wise economy, and save much trouble at the outset of a voyage, if the crew were medically inspected before sailing. The ship gets into "bluc-water" with a heavy sick-list, and accident and loss are sometimes the consequence. But in the scramble for men and the hurry of sailing there is not much chance of this precaution being adopted, which operates so advantageously in the public service.

In some points the merchant seaman is perhaps better off than the man-of-war's man. If he has harder work at sea he may spend a longer time at home, with ample means for his personal maintenance, and a more perfect liberty, whether for good or evil. He is more in the open sea, and passes annually through a bracing and exhilarating variety of climate, while the servants of the State are too often doomed to remain for several years on monotonous and pestilential stations. Yet we know that even in trying climates, so long as no contagious or malignant endemic disease appears, the sanitary condition of the Royal Navy is, on the whole, remarkably good. Some instances of this have come under our immediate observation. A steamer with eighty men (whites) spent two years and a half on the West Coast of Africa, actively cruising in search of slavers, and with much boat-work in rivers, without losing one of her ship's company. A frigate with 500 men was upwards of a year in Indian and Arabian waters with only two deaths, and no invaliding on account of mortal disorders. Another frigate. with a crew of 450, cruised for six months in the West Indies and Gulf of Mexico without losing a man from Similar instances might be adduced from the experience of naval medical officers. It will be found in these cases that the satisfactory condition of the ship is mainly due to the arrangements of those in command, and

that the medical and executive officers have co-operated harmoniously in suggestion and practice for the welfare of their men. Instances of the contrary kind are unfortunately not wanting, with commensurate disadvantage to individual and public interests.

In those merehant vessels that habitually earry medical officers the sanitary condition of the erew we believe to be generally good. It would be interesting and desirable to know the medical statistics of the fleets of great companies, as the Peninsular and Oriental, Cunard's, &e., for which, no doubt, the materials exist. We are under the impression that they would be found very satisfactory. The data for the vital statistics of the mereantile marine are necessarily very imperfect. Besides the great mortality in foreign ports and at sea, there must be a very large number who return to die at their homes, or still oftener in the hospital or workhouse. The same objection applies in some degree, no doubt, to the army and navy returns, hundreds of men with tuberculosis and other ehronic maladies being discharged from the service some time before their But it may be safely alleged that the proportion of such eases in the mereantile marine is infinitely greater.

The present time seems judiciously chosen for endeavouring to revive the nautical spirit of the country, which has been flagging somewhat of late. In the contests of party strife some needful measures have been postponed from session to session. In the meanwhile we have seen a fifth great naval power spring up in one day into vigorous life, and new political combinations may arise seriously affecting our maritime supremacy. Many thousands of our best seamen are at this very time derived from those hardy nations of the North, who, as in former times, are liable to be coerced or estranged from us by their more powerful neighbours. Such contingencies are not to be overlooked in a period of momentous change in Europe.

In concluding these reports, we may add that they have been grounded on an intimate association with both branches of our marine during a quarter of a century. In that time we have seen so much of silent gradual improvement in other respects, that we have no fear that if the subject be fairly taken in hand by the Legislature and the country, the merchant navy may yet attract to itself a larger and better section of the population, and regain much of its former *prestige* and prosperity.

THE END.

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